

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

Cantex Inc

Missouri Enterprise

Cantex Reduces Scrap Through Advanced Technology

Client Profile:

CANTEX PVC Products had its beginning over 40 years ago, as a division of a national corporation in the utility and building construction industry. In February 1992, CANTEX was acquired by the respected Sumitomo Corporation, a multifaceted global business leader. CANTEX is now a leading producer of PVC products, with eight manufacturing facilities across the country. The company's Rolla, Missouri facility employs less than 250 people.

Situation:

CANTEX was having trouble with the vacuum pressure in its extruder. A drop in vacuum pressure occurs because the extruder vacuum-block and associated plumbing are easily plugged with the resin sucked out of the extruder barrel by the vacuum process. As such, the vacuum-block and attached plumbing need to be thoroughly cleaned frequently. The process of reopening plugged lines almost always results in a total loss of vacuum in the extruder. Both a drop in vacuum, or total loss of vacuum, in the extruder results in scrap pipe being generated until a vacuum can be re-established.

In the fall of 2001, CANTEX approached the Missouri Enterprise Business Assistance Center (Missouri Enterprise), a NIST MEP network affiliate, and asked the organization to design a mechanical device that would minimize the loss of vacuum in the extruder during operation.

Solution:

Missouri Enterprise approached the problem with the objective of reducing the amount of resin being sucked into adjacent plumbing and providing a means for cleaning the plumbing without loss of vacuum. Missouri Enterprise designed a new vacuum block interface, which reduces the velocity of the air being drawn from the extruder and removes volatiles from both extruder barrels at the same time. The new design also increases the resin's resistance to being plucked from the extruder barrel by moving air vertically from the extruder rather than horizontally.

To provide a means of cleaning the tubes without the extruder experiencing a loss of vacuum, Missouri Enterprise integrated a "rod and pig" cleaning mechanism into the new vertical vacuum plumbing. The cleaning rods, designed to be the piston rods of two pneumatic cylinders, attach to the top of the new device. A "pig," or cleaning device, fits on the ends of the piston rods. When the rods are extended the pig enters the vacuum portal and pushes any

MANUFACTURING EXTENSION PARTNERSHIP

Success Stories from the Field

resin build-up back into the extruder.

CANTEX built and installed a prototype system, and tests revealed that the system works. Downtime required for cleaning the vacuum system has been drastically reduced, and CANTEX is impressed by the first device it has ever used that has worked to solve the problem.

Results:

Developed and installed revolutionary vacuum plumbing cleaner device prototype.

Reduced scrap rates.

Improved productivity.

Testimonial:

"Missouri Enterprise was willing to take on this challenge and attacked a problem that the plastic pipe making industry has historically viewed as 'unfixable.' The design Missouri Enterprise came up with looked feasible and the engineering seemed to be sound so we decided to build one of their devices. It worked!"

Tom Elliott, Plant Manager